CLAIM AMENDMENTS

1. (canceled)

2. (currently amended) The method according claim [[1]] 20 wherein a target with a doping content of less than 1.5 at-% is used.

3. (currently amended) The method according to claim [[1]] 20 wherein a target with aluminum as the doping agent is used.

4. (currently amended) The method according to claim [[1]] 20 wherein the substrate is heated to ~~temperatures~~ above 250 °C.

5. (currently amended) The method according to claim [[1]] 20 wherein a dynamic deposition rate of greater than 80 nm*m/min is set that corresponds to a static deposition rate of greater than 300 nm/min.

6. (currently amended) The method according to claim [[1]] 20 wherein a dual magnetron arrangement with medium frequency excitation is used.

7. (currently amended) The method according to claim [[1]] 20 wherein a dynamic flow process is carried out in which the substrate is moved during sputtering.

8. (currently amended; withdrawn) A conductive and transparent zinc oxide layer, produced with the method according to claim [[1]] 20, ~~characterized in that~~ wherein the content of doping agent, ~~particularly of aluminum,~~ in the produced oxide layer is less than 3.5 at-%, [[that]] the resistivity is less than $1*10^{-3}$ W cm, [[that]] the charge carrier mobility is greater than 25 cm^2/V s, and [[that]] the averaged transmittance of 400 to 1100 nm is greater than 80%.

9. (withdrawn) The oxide layer according to claim 8 wherein the content of doping agent is less than 3 at-%, particularly less than 2.5 at-%.

10. (withdrawn) The oxide layer according to claim 8 wherein the resistivity is less than $5*10^{-2}$ W cm.

11. (withdrawn) The oxide layer according to claim 8 wherein the charge carrier mobility is greater than 35 cm^2/V s.

12. (withdrawn) The oxide layer according to claim 8 wherein the averaged transmittance of 400 to 1100 nm is greater than 82%.

13. (withdrawn) The oxide layer according to claim 8 wherein the layer comprises aluminum as the doping agent.

14. (withdrawn) Use of an oxide layer according to claim 8 in a solar cell.

15. (withdrawn) The use according to claim 14 in a crystalline silicon thin-film solar array.

16. (withdrawn) The use according to claim 14 in an amorphous and crystalline silicon tandem solar array.

17. (currently amended) The method according claim [[1]] 20 wherein a target with a doping content of less than 1 at-% is used.

18. (currently amended) The method according to claim [[1]] 20 wherein the substrate is heated to temperatures above 300 °C.

19. (currently amended) The method according to claim [[1]] 20 wherein a dynamic deposition rate of greater than 100 nm*m/min is set that corresponds to a static deposition rate of greater than 380 nm/min.

20. (new) A method of making a conductive and transparent zinc-oxide layer on a substrate by reactive sputtering, the sputtering process including a hysteresis region, a heater for heating the substrate to more than 200 °C, and a dynamic deposition rate of greater than 50 nm*m/min that responds to a static deposition rate of more than 190 nm/min, the method comprising the steps of:

using a metallic Zn target with a doping content of less than 2.3 at-%;

controlling subsequent etching behavior and resulting surface roughness of the zinc-oxide layer by selecting a stabilized operating point within the unstable process region that is located between a transition point between a stable metal process and an unstable process and an inflection point of the stabilized process curve; and

post-treating the zinc-oxide layer by wet-chemical or dry etching to develop a root-mean-square roughness of 30 to 300nm.